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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/513,914	02/25/2000	Ramanamurthy Dantu	067191.0111	7470

7590 01/30/2004

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EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 01/30/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/513,914

Applicant(s)

DANTU ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72, 76 and 77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-72, 76 and 77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/19/03 has been entered.

Response to Amendment

2. **Claims 1-72, 76, and 77** as amended are still in consideration for this application. Applicant has amended claims 1, 7 and 8. Applicant has canceled claims 6 and 9.

Per applicant's request concerning allowable subject matter, the examiner recommends that applicant focus on how a handoff is performed using label switching as disclosed in applicant's specification but not recited in the claims. In particular, although *Ahmed* teaches performing a soft handoff using tunneling for an anchor base station, *Ahmed* may not teach specifics related to using MPLS in a handoff.

3. Examiner does **not withdraw** the obviousness rejection to *Mikkonen* for Office action filed 10/24/03. In response to applicant's arguments, a second virtual path between a first and second router may not be clearly taught by *Mikkonen*. As further support, *Ahmed* teaches tunneling (i.e., a second virtual path) for a soft handover between routers (e.g., see column 20, lines 17-21). Thus *Ahmed* provides support for a second virtual path. Hence find a new rejection for some of the claims. However, as to claim 39, see at least figure 4a and figure 6 of *Mikkonen*.

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4. Examiner does **not withdraw** the obviousness rejection to *Mikkonen* in view of *Ahmed* for Office action filed 10/24/03. In response to applicant's arguments, applicant argues for independent claim 1 that *Mikkonen* does not teach the concept of handoff in reference to applicant's remarks filed 12/19/03 on bottom of page 15. The term "handoff" appears at least on column 5, lines 45-67 of *Mikkonen* (emphasis added). Specifically, *Mikkonen* is silent or deficient on how a "handoff" might be implemented for a wireless system. As such, *Ahmed* cures the deficiency for how a "handoff" is implemented with respect to an anchor base station/router in a wireless system. Applicant does not address the *Ahmed* reference. Thus at issue is not the references as taught in singular, but the references as taught in combination. As to independent claims 50 and 60, see similar reasoning above for claim 1. In addition, as to claims 64 and 76, also see the *Ahmed* reference which is not addressed by applicant.

5. Examiner does **not withdraw** the obviousness rejection to *Mikkonen* in view of *Ahmed* and *Schoen* for Office action filed 10/24/03. In response to applicant's arguments, one skilled in the art would be motivated to combine the references as a whole since all three references teach communications in general, and more specifically mobile communication. Examiner notes a reasonable expectation of success by using IP in mobile communications.

6. Examiner does **not withdraw** the obviousness rejection to *Mikkonen* in view of *Ahmed* and *Perkins* for Office action filed 10/24/03. In response to applicant's arguments, one skilled in the art would be motivated to combine the references as a whole since all three references teach communications in general, and more specifically routing. Examiner notes a reasonable expectation of success by using IP in mobile communications.

Claim Rejections - 35 USC § 103

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 39-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen*.

As to **claim 39**, see figure 4b with respect to an IP tag and RFID. In particular note an IP flow in reference to figure 6. Not clearly disclosed is routing the packet to a router for call processing. Examiner notes that it would have been obvious to one skilled in the art to route the packet for the purpose of call processing. In particular, one would be motivated to route the packet for call processing for a wireline call such as a call over the Internet.

As to **claims 40 and 41**, see figure 6.

9. **Claims 1-8,12,14-15,17-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*") and "Voice Service Internetworking for PSTN and IP Networks" to *Hamdi et al.* ("*Hamdi*").

As to **claim 1**, not clearly disclosed in the *Mikkonen* reference is a wireless router with two interfaces: a first interface operable to communicate wireless packets and a second interface operable to communicate wireline packets. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to combine the functionality of both interfaces into a single device (i.e., a wireless router). In support,

Mikkonen discloses a mobile IP router 5 (i.e., a wireless router) which contains two basic interfaces, the first interface as part of the access point 4 and the second interface as part of the access point controller or mobile router 5 as shown in figures 2 and 4. Examiner notes the integration of the two devices is shown with respect to a common Ethernet bus as is known in the art shown in figure 4b. Furthermore, examiner notes in figure 2 that the functionality of an access point 4 and access point controller are separated for a first access point controller (APC1) and combined for second and third access point controllers (APC2 and ACP3) thus also providing a motivation. As *Mikkonen* teaches the functionality for both interfaces, examiner notes a motivation is to combine or integrate functions as part of an engineering design choice. Finally, examiner notes the combined functionality for a traffic controller is taught in the combination of an access point and access point controller. Also not clearly disclosed is the further limitation of “intercommunication” between wireless routers (i.e., the further amended limitation “to communicate with other wireless routers” and “to intercommunicate”). Examiner notes that it would have been obvious for two wireless routers to intercommunicate with one another. One motivation would be for handoff control. *Mikkonen* provides such support by disclosing that the wireless routers support handoff/handover (see column 5, lines 44-56). Thus *Mikkonen* provides general support for wireless router intercommunication. Examiner also notes that *Ahmed* provides further support by disclosing specific examples of how intercommunication processes between wireless routers occurs (e.g., see column 5, lines 22-45 and columns 19-20 of *Ahmed*). Thus *Ahmed* provides further motivation for teaching inter-communication between wireless routers as is known in the art. Thus

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Ahmed also cures the above-cited deficiency. In addition, both *Mikkonen* and *Ahmed* are silent to the further limitation of a PSTN gateway (i.e., where a traffic controller in a router operates with a PSTN gateway through the wireless network). As an example, figure 2 of *Mikkonen* shows communication between two IP networks (i.e., domains) but does not show a PSTN network. Examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to have a traffic controller in a router be operable to communicate with a PSTN gateway. *Hamdi* teaches using a PSTN gateway to communicate with a PSTN (e.g., see figures 7 and 8 on page 109). One skilled in the art would be motivated to modify the references to include the teachings of *Hamdi* since *Hamdi* teaches internetworking IP (i.e., an in IWF interfaces with IP). In addition, one skilled in the art would be motivated to have a PSTN gateway in order to communicate with users on a PSTN network. Thus *Hamdi* cures the above-cited deficiency.

As to **claim 2**, see figure 4b.

As to **claim 3**, see figure 2 with respect to the mobile IP router and the mobile domain router.

As to **claim 4**, see figure 6 which is technology independent.

As to **claim 5**, as the access point is technology independent examiner notes a first and a second access technology are used [column 5, lines 38-41].

As to **claims 6**, *Mikkonen* teaches that soft handoffs are supported [column 5, lines 51-53]. Thus an access point controller can handle handoff a mobile through more than one access point.

As to **claims 7 and 20**, *Mikkonen* in general discloses that handoffs are accomplished using virtual paths or connections as is known in the art [column 5, lines 51-53]. Examiner notes the reference is silent or deficient to how soft handoffs are performed (i.e., other than the connection is moved from control station (i.e., wireless router) to another control station (i.e., wireless router) as is known in the art). Examiner notes that it would have been inherent or obvious to a skilled artisan prior to applicant's invention to perform the soft handoff by using virtual path between the two control nodes (i.e., wireless routers). As support, examiner notes that *Mikkonen* teaches in general using virtual paths between nodes in a system, such as two nodes in a system that are performing a handoff. As further support, *Ahmed* discloses how handoffs are used in a third generation network (such as the one purposed by *Mikkonen*) using the concept of an anchor base station [column 20, lines 2-15] as well as tunnels [column 20, lines 19-21]. Examiner notes that a skilled artisan would recognize that tunnels are implemented using MPLS taught by the combined teachings of *Mikkonen* and *Ahmed* (i.e., a virtual path acts as a tunnel as taught in the combined rejection).

As to **claim 8**, *Mikkonen* teaches micro-mobility by having a domain router connect other mobile IP routers in a domain, see figure 2.

As to **claims 12**, see column 7, lines 65-67 and column 8, lines 1-4 where the mobile IP router provides policy management and admission control

As to **claim 14**, see the combined rejections for claims 4 and 6.

As to **claim 15**, as the mobile IP router provides QoS examiner notes that the wireless router is further operable to classify packets [column 8, lines 5-29].

As to **claims 17-18**, see the rejection for claims 12-13.

As to **claim 19**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to implement the invention using software as a matter of design choice as is known in the art.

As to **claim 21**, *Ahmed* discloses a selector in selecting an anchor base station for a soft handoff [column 20, lines 2-15].

As to **claim 22**, *Ahmed* discloses a distributor by duplicating packets (i.e., more than one instance) sent to more than one base station during a soft handoff [column 20, lines 2-15].

As to **claim 23**, examiner notes the reference in combination teaches using MPLS to implement the virtual path.

As to **claims 24-25**, see the similar rejection to claim 2.

As to **claim 26-27**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to implement a soft handover as part of hardware and/or software as a manner of design choice. Examiner notes further support provided by *Ahmed* column 6, lines 26-43.

As to **claims 28-29**, examiner notes a synchronization bias for synchronous transmission is taught using the anchor base station as is known in the art [column 20, lines 2-15]. In particular, packets are transmitted in duplicate (i.e., multicast) with synchronization bias as is known in the art for the purpose or motivation of selecting or combining packets as taught by the reference.

As to **claim 30**, in addition to the rejection for claim 20, *Ahmed* teaches a packet-based network which in combination is an IP flow.

10. **Claims 31-33, 34-38, 42-49, 50-72, and 76-77** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*").

As to **claim 31**, *Mikkonen* reference teaches a first router (e.g., a mobile IP router 5) and a second router (e.g., a MD router 7) as shown in figure 2. *Mikkonen* further teaches a first virtual path between the two routers for at least the transport of user data (e.g., application data).

It may be unclear from *Mikkonen* that a second virtual path is taught between a first and second router. Examiner notes that one is implied given the teachings at column 5, lines 45-67 since the radio access network controls handover, however, the reference is further silent on handover may be implemented. Examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to further include the limitation of a second virtual path configured between the first and second routers for transmission of wireless protocol traffic for at least the motivation of performing an handoff using an anchor base station as taught by *Ahmed*. In particular, *Ahmed* cures the above-cited deficiency by disclosing that a tunnel is used for a handover between routers (e.g., see column 20, lines 15-21). Thus *Ahmed* provides a motivation for a second virtual path.

As to **claim 32**, *Mikkonen* discloses a label switched path, see figure 6.

As to **claim 33**, see figure 4b.

As to **claim 34**, see the same rejection for claim 20 where examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use a second virtual path to provide a soft handoff. Examiner notes the motivation is provided by *Ahmed* that discloses connections between the various base stations where one connection is a virtual path as taught in combination with *Mikkonen*.

As to **claims 35-36**, see column 7, lines 65-67 and column 8, lines 1-4 of *Mikkonen* where the mobile IP router provides policy management and admission control and where QoS is used for allocating bandwidth and reserving resources as is known in the art.

As to **claim 37**, see *Mikkonen* column 8, line 1.

As to **claim 38**, see the combined rejections for claims 35-37.

As to **claim 42**, examiner notes a synchronization bias for synchronous transmission is taught using the anchor base station as is known in the art [column 20, lines 2-15]. In particular, packets are transmitted in duplicate (i.e., multicast) with synchronization bias as is known in the art for the purpose or motivation of selecting or combining packets as taught by the reference.

As to **claim 43**, examiner note that the anchor base station acts as a primary router for the call as is known in the art.

As to **claim 44**, see the rejection for claim 1.

As to **claims 45**, see similar rejection for claim 35.

As to **claims 46**, see similar rejection for claim 36.

As to **claim 47**, see the rejection for claim 6.

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As to **claim 48**, see similar rejection for claim 37.

As to **claim 49**, see the rejection for claim 1.

As to **claim 50**, *Mikkonen* in general discloses that handoffs are accomplished using virtual paths or connections as is known in the art [column 5, lines 51-53].

Examiner notes the reference is silent or deficient to how soft handoffs are performed (i.e., other than the connection is moved from control station (i.e., wireless router) to another control station (i.e., wireless router) as is known in the art). Examiner notes that it would have been inherent or obvious to a skilled artisan prior to applicant's invention to perform the soft handoff by using virtual path between the two control nodes (i.e., wireless routers). As support, examiner notes that *Mikkonen* teaches in general using virtual paths between nodes in a system, such as two nodes in a system that are performing a handoff. As further support, *Ahmed* discloses how handoffs are used in a third generation network (such as the one purposed by *Mikkonen*) using the concept of an anchor base station [column 20, lines 2-15] as well as tunnels [column 20, lines 19-21]. Examiner notes that a skilled artisan would recognize that tunnels are implemented using MPLS taught by the combined teachings of *Mikkonen* and *Ahmed* (i.e., a virtual path acts as a tunnel as taught in the combined rejection).

As to **claim 51**, see the rejection for claim 23.

As to **claims 52-53**, examiner notes the selection of an anchor base station using a broad but reasonable interpretation of a forwarding table and trigger rule as is known in the art (e.g., see figure 3b block 30 of *Ahmed*).

As to **claims 54-56**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use certain selection criteria for a handoff which includes pattern matching, error correction bits, and frame sequence number (FSN) of the signal. As support, *Ahmed* discloses selecting some "quality metric" for each packet received [column 20, lines 9-10] where such a "quality metric" is pattern matching, error correction bits, or frame sequence numbers as is known in the art.

As to **claims 57-58**, *Ahmed* teaches a broad but reasonable interpretation of an active list and a candidate list in the selection of an anchor base station (i.e., each wireless router is equipped with a handoff manager capable of collecting relevant information from neighboring wireless routers) [column 19, lines 21-36].

As to **claim 59**, *Mikkonen* discloses an RF front end as is known in the art.

As to **claim 60**, in addition to the reasoning for claim 7, examiner notes the active set of routers includes an anchor base station (i.e., the primary router) and a set of directed nodes (i.e., secondary wireless routers). *Ahmed* teaches in general that mobiles communicate with the network node also assist in handoff decisions by providing signal strength information from neighboring nodes [column 19, lines 24-26]. Thus a communication is received from a mobile device identifying an active set of routers.

As to **claim 61**, see the rejection for claim 51.

As to **claim 62**, see figure 4 of *Mikkonen*.

As to **claim 63**, both references disclose GSM radio frames.

As to **claim 64**, *Mikkonen* discloses that handoffs are possible between wireless and wireline routers. *Mikkonen* is silent or deficient on how the handoffs are preformed.

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Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to perform a handoff using an anchor base station (i.e., wireless router) as is known in the art. Examiner notes that *Ahmed* discloses such a motivation since *Ahmed* teaches the concept of a soft handoff for a base station using packets for an anchor base station as is known in the art (see similar rejection with respect to claim 60).

As to **claim 65**, see the same reasoning behind the rejection for claim 2.

As to **claims 66-67**, see the rejection for claim 21.

As to **claim 68**, see the same reasoning behind the rejection for claim 23.

As to **claims 69-72**, see the rejection for claims 28-29.

As to **claim 76**, see the rejection for claim 73.

As to **claim 77**, see the rejection for claim 23.

11. **Claims 9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*") and "Voice Service Internetworking for PSTN and IP Networks" to *Hamdi et al.* ("*Hamdi*") and in further view of "Convergence Between Public Switching and the Internet" to *Schoen et al.* ("*Schoen*").

As to **claims 9-11**, *Mikkonen* teaches that the core network consists of nodes connected to the Internet [column 6, lines 1-2]. Examiner notes the reference is silent or deficient to a gateway connected to a public switched telephone network (PSTN).

Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to connect the Internet to the PSTN. One motivation is to route calls over the Internet (or vice versa). As support *Schoen* discloses various forms for how the PSTN

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would be connected to the Internet which includes a call agent and a media gateway in general (e.g., see figure 12 on page 64).

12. **Claims 13 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*") and "Voice Service Internetworking for PSTN and IP Networks" to *Hamdi et al.* ("*Hamdi*") and in further view of "Mobile IP and Security Issue: An Overview" to *Perkins*.

As to **claims 13 and 16**, *Mikkonen* is general silent to mobile security and in particular using an AAA server. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to provide security in a wireless system that includes an AAA server. As support and motivation examiner notes that *Perkins* discloses using an AAA server for mobile IP as is known in the art.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- WO 00/45560 (in relation to U.S. Application 09/484,426 not yet published) discloses in figure 1 a wireless and wireline router. In particular, see figure 5 with respect to a label for label switching and a first and second virtual path.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663


DWF


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 1/26/08